

REMARKS

Claims 1-5, 7-21, and 23-27 are pending in the case, claims 6 and 22 having been canceled above. The Office Action rejected each of claims 1-27 on various grounds. More particularly, the Office Action rejected:

- claims 1, 4-17 and 20-27 as anticipated under 35 U.S.C. §102(e) by U.S. Letters Patent 5,359,575 (“Williams”); and
- claims 2, 3, and 18-19 as obvious under 35 U.S.C. §103(a) over Williams in combination with “Radar/Sonar Acceleration Estimation with Linear Period Modulated Waveforms” by R. A. Altes (“Altes”) and “Own Doppler Nullification (ODN) in Sonars Using Linear Period Modulated (LPM) Wideband Signals” by Ashley, et al. (“Ashley”).

Applicants traverse each of the rejections.

I. INFORMALITIES

The Office acknowledged receipt of all priority papers and the claim to priority. The Office did not object to the claim to priority. Accordingly, Applicants presume that the claim to priority has been perfected. Should this be incorrect in the Office’s view, Applicants request notification.

The Office did not take a position on the acceptability of the drawings. Applicants therefore presume that the drawings are acceptable unless the Office affirmatively objects to them.

The Office acknowledges receiving the Information Disclosure Statements filed March 2005 and January 2007. The Examiner indicated that he considered all the references listed therein.

II. RESPONSE TO SUBSTANTIVE MATTERS

Applicants traverse each of the rejections.

A. CLAIMS 1, 4-17 AND 20-27 ARE NOVEL OVER WILLIAMS

The Office rejected claims 1, 4-17 and 20-27 as anticipated under 35 U.S.C. §102(e) by U.S. Letters Patent 5,359,575 ("Williams"). The rejections suffer from two flaws. First, the Office has failed to properly establish *prima facie* anticipation for the claims. Second, Williams does not teach all the limitations of the claims.

"[I]t is incumbent upon the examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference." *Ex parte Levy*, 17 U.S.P.Q.2d (BNA) 1461, 1462 (Pat. & Tm. Off. Bd. Pat. App. & Int. 1990). With respect to claims 4-16 and 20-27, the entire rejection is:

Dependent claims 4-16 and 20-27 are further anticipated by the structure and method disclosed by Williams et al.

(Detailed Action, p. 2, ¶3) There is no attempt to map any limitation of any of these claims back into Williams. The Office has therefore failed to establish *prima facie* anticipation for any of claims 4-16 and 20-27. Since claims 1 and 17 have been amended to incorporate the limitations of claims 6 and 22, respectively, that means that the Office has failed to establish *prima facie* anticipation of any claim.

An anticipating reference, by definition, must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. M.P.E.P. § 2131; *In re Bond*, 15 U.S.P.Q.2d (BNA) 1566, 1567 (Fed. Cir. 1990). Each of the independent claims 1 and 17 now recite "a plurality of separable, modulated Doppler invariant signals". The remaining claims incorporate this limitation as a matter of law by virtue of their dependence. 35 U.S.C. §112, ¶4. The Office has yet to identify any teaching in Williams as to this particular limitation and Applicants' review has failed to produce any. Williams therefore fails to anticipate any claim.

The rejections therefore fail on two independent grounds. Not only has the Office failed to properly establish *prima facie* anticipation, but it the cited reference fails to teach all the limitations of the claims. Applicants therefore request that the rejections be withdrawn.

B. CLAIMS 2, 3, AND 18-19 ARE UNOBTAINABLE OVER WILLIAMS IN COMBINATION WITH EITHER ALTES OR ASHLEY

The Office rejected claims 2, 3, and 18-19 as obvious under 35 U.S.C. §103(a) over U.S. Letters Patent 5,359,575 (“Williams”) in combination with “Radar/Sonar Acceleration Estimation with Linear Period Modulated Waveforms” by R. A. Altes (“Altes”) and “Own Doppler Nullification (ODN) in Sonars Using Linear Period Modulated (LPM) Wideband Signals” by Ashley, et al. (“Ashley”). These rejections fail because the combinations do not teach all the limitations of the claims. Furthermore, the secondary references are outside the scope and content of the prior art, which also means that the references are not properly combinable.

As noted above, each of the independent claims 1 and 17 now recite “a plurality of separable, modulated Doppler invariant signals”. The remaining claims incorporate this limitation as a matter of law by virtue of their dependence. 35 U.S.C. §112, ¶4. Williams does not teach this limitation. Nor do either of Altes or Ashley. To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must teach or suggest all the claim limitations. M.P.E.P. § 706.02(j); *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). The art of record therefore fails to render obvious any of claims 2, 3, and 18-19.

Altes and Ashley are also outside the scope and content of the prior art. A reference can be asserted against the claimed invention under §103 only if (1) it is within Applicant's field of endeavor, or (2) is reasonably pertinent to the problem facing Applicant even though not within Applicant's field of endeavor. *In re Clay*, 23 U.S.P.Q.2d (BNA) 1058, 1060 (Fed. Cir. 1992).

The present invention as claimed is directed to determining the position of survey components during deployment of a seismic survey through acoustic ranging. Both Altes (p. 914, col. 2, lines 3-6) and Ashley (p. 570, col. 1, lines 2-7) concern SONAR/RADAR detection of underwater targets. It is also clear in context that the techniques are intended for application in a military context. Thus, they are not within Applicants' field of endeavor.

This leaves the question of whether Altes and Ashley are “reasonably pertinent to the problem facing Applicant”. *Clay*, 23 U.S.P.Q.2d (BNA) at 1060.

A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem. Thus, the purposes of both the inventor and the prior art are important in determining whether the reference is reasonably pertinent to the problem the invention attempts to solve. If a

reference disclosure has the same purpose as the claimed invention, the reference relates to the same problem, and that fact supports use of that reference in an obviousness rejection. An inventor may well have been motivated to consider the reference when making his invention. If it is directed to a different purpose, the inventor would accordingly have less motivation or occasion to consider it.

Clay, 23 U.S.P.Q.2d (BNA) at 1060.

It is apparent from Applicants' specification that the problem driving the development of the present invention was the degradation of cross-correlation estimates in estimating the position of survey components. (§§0004]-§[[0005]) Altes and Ashley, as was noted above, are directed to SONAR/RADAR in detection of targets in a military context. There are fundamental differences between the use of acoustic signals in a military context and in a seismic survey. For example, in a military context, it is not actually known *a priori* that a target is present and range is much more important. But, more importantly, ranging is of secondary importance in a military context, coming into play only after detection. Thus, in the military context, the signal travels relatively great distances to locate a target whose presence is unknown *a priori* and if, and only if, detection occurs, ranging follows. This is a distinctly different operational scenario from that found in seismic surveying, in which the presence of the survey components is known within some also known distance and the whole point is ranging.

Other facts about Altes and Ashley may be discerned from the face of the references that support the fact that they are outside the scope and content of the prior art. Altes was published in the *IEEE Transactions on Aerospace and Electronic Systems*, hardly a source to which a seismic surveyor would turn. The author's bio indicates that Altes worked for a variety of defense contractors, who are also not known for their interest in seismic surveying. Ashley was published in the *IEEE Pacific Rim Conference on Communications, Computers and Signal Processing*, again a publication not likely recommended to those in seismic surveying.

Thus, Altes and Ashley are outside the scope and content of the prior art. They are not within Applicants' field of endeavor and they are in a field that is not reasonably pertinent to the problem confronting Applicants. The Office has provided no reason why those in the art of seismic surveying would look to military applications of SONAR and RADAR, and no cross-referencing of the fields is apparent from the evidence of record. Indeed, the evidence gleaned from the references themselves would actually support the opposite conclusion—that those in the art of seismic surveying would not look to references such as Altes and Ashley.

Applicants therefore respectfully submit that the rejections are erroneous. The art of record does not teach all the limitations of the claims, and therefore cannot render the claims obvious. M.P.E.P. § 706.02(j); *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). The secondary references are outside the scope and content of the prior art such that they are not properly citable against the present claims. *In re Clay*, 23 U.S.P.Q.2d (BNA) 1058, 1060 (Fed. Cir. 1992). Applicants therefore request that the rejections be withdrawn.

III. CONCLUDING REMARKS

Applicants therefore respectfully submit that the claims are in condition for allowance, and requests that they be allowed to issue. The Examiner is invited to contact the undersigned attorney at (713) 934-4053 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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